November 25, 2024
Meidensha Corporation

Meiden delivers ester-oil filled transformer for power distribution to TEPCO Power Grid

–Aiming to realize a sustainable society–

Meidensha Corporation (Meiden) has delivered a power distribution transformer using eco-friendly ester oil as its insulating oil to TEPCO Power Grid, Inc. (TEPCO PG) for the first time. The product began operations on November 22.

The product, which uses plant-based palm fatty acid ester (palm oil) for insulation, can be transported fully assembled and fully loaded with palm oil. The company also plans to deliver transformers using natural ester oils, such as soybean oil and rapeseed oil, for which TEPCO PG has placed orders, in addition to those filled with palm oil.

In recent years, the demand for transformers that use plant-based ester oils instead of mineral oils has been increasing, as more substation facilities aim to become eco-friendly. Meiden offers a range of transformer and shunt reactor lineups that utilize three types of ester oils, which are classified as readily biodegradable electric insulating oils. These include plant-based esters like palm oil, as well as natural esters such as rapeseed oil and soybean oil, and synthetic esters. Meiden uses palm oil[*2] as plant-based ester and rapeseed oil and soybean oil as natural esters. Considering the unique characteristics of each type of ester oil, it proposes products using these ester oils to meet clients' needs.

Main specifications and features of ester-filled transformers for power distribution

- Rated voltage: 66/6.6 kV
- Rated capacity: 20 MVA
- Tap-changing type: No-load tap-changing type
- Oil degradation prevention method: Non-pressure, sealing method
- Type of insulation oil: Ester insulating oil (Palm oil, soybean oil and rapeseed oil)
- Cooling method: Oil-filled, air-cooled type

<table>
<tr><td>Product name</td><td>Palm oil-filled transformer</td><td>Rapeseed oil-filled transformer</td><td>Soybean oil-filled transformer</td></tr>
<tr><td>Type of oil</td><td>Plant-based ester
Palm fatty acid ester</td><td>Natural ester (vegetable oil)
Rapeseed oil</td><td>Natural ester (vegetable oil)
Soybean oil</td></tr>
<tr><td rowspan="2">Features</td><td>• Excellent cooling property
• Compact transformer size</td><td colspan="2">• The transformers are suitable for installing places where fire safety is a priority, due to their high flash and combustion points.</td></tr>
<tr><td colspan="3">• Capable of being transported fully assembled and fully loaded with oil
• Capable of cutting greenhouse gas emissions
• Capable of prolonging transformer longevity</td></tr>
</table>

As a sustainability partner contributing to the realization of a more affluent and comfortable society, Meiden remains committed to creating new value through its technologies, aiming to provide clients with peace of mind and satisfaction.

*1: JIS C 2390: 2019 Readily biodegradable electric insulating oils
The JIS C 2390 series are composed of the following:
Part 1: Synthetic ester (JIS C 2390-1: 2019); Part 2: Natural esters (Vegetable oils) (JIS C 2390-2); Part 3: Modified esters derived from vegetable oils (JIS C 2390-3: 2019)

*2: Palm oil (classified under fats and oils) can be produced in large quantities year-

round, leading to annual production increases and associated challenges related to human rights, labor, and the environment. Meiden acknowledges the potential risks involving its business activities compromising sustainable development, and has implemented an appropriate procurement policy. This policy ensures that palm fatty acid oil is sourced exclusively from partners who actively support and promote measures to deal with these issues.

Past press releases for reference
June 29, 2023
Meiden expands the lineup of Ester-filled Transformer with the aim of realizing a sustainable society
May 8, 2024
“Meiden succeeds in commercializing ester-filled shunt reactor